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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,808	01/27/2004	Huang-Ming Chen	N1085-00256 [TSMC2003-08]	2454
54657 7590 06/03/2009 DUANE MORRIS LLP (TSMC) IP DEPARTMENT 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196				
EXAMINER				
MOORE, KARLA A				
ART UNIT		PAPER NUMBER		
1792				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/765,808

Applicant(s)

CHEN ET AL.

Examiner

KARLA MOORE

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-12 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-12 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-7 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,998,932 to Lenz.

3. Regarding claims 1 and 29-30: In Figures 3 and 4, Lenz discloses a plasma etching apparatus comprising a chuck (104) adapted to retain a substrate (106) thereover and hardware (302a and 302b) that is formed of a material (quartz) that includes oxygen impregnated throughout and therein (i.e. oxygen permeated thoroughly; filled or saturated with oxygen) such that said oxygen is capable of being released when an etching operation is carried out, wherein the hardware comprises a focus ring and at least a portion of said focus ring is substantially continuously extends directly underneath a peripheral portion of said chuck. Also see, column 4, rows 44-55.

4. With respect to claim 2, said chuck is substantially circular and said focus ring peripherally surrounds said chuck. See, e.g., column 2, rows 53-57.

5. With respect to claims 3, the focus ring comprises a lower focus ring (302b) and an upper focus ring (302a), at least a portion of said lower focus ring substantially

continuously extending below a peripheral portion of said chuck. See, e.g., Figures 3 and 4.

6. With respect to claims 4 and 31, Lenz teaches that it is known in the art to use an electrostatic chuck as the chuck for retaining the substrate. See, e.g., column 1, rows 25-28.

7. With respect to claims 5 and 6, said hardware comprises a focus ring comprised primarily of quartz or ceramic (alumina or silicon nitride, e.g.). See, e.g., column 2, rows 53-57.

8. With respect to claim 7, 302b can be considered to be the focus ring and 302a the further focus ring, wherein the two together are parts of a set.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 9-12 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz as applied to claims 1-2, 4-7 and 29 above, in view of U.S. Patent NO. 5,529,657 to Ishii.

12. Lenz discloses the etching apparatus substantially as claimed and as described above.

13. However, with respect to claim 9, Lenz fails to teach said focus ring maintainable at a temperature no greater than a temperature of said substrate while etching operation is carried out upon said substrate.

14. Ishii teaches a focus ring capable of being maintained at a temperature no greater than a temperature of said substrate while etching operation is carried out upon said substrate by way of a coolant reservoir and temperature-adjusting heater, which adjust the temperature of a wafer (W) and a chuck (multiple structures: Figure 1; 4, 31 and 32) which contact the focus ring and would therefore also adjust the temperature of the focus ring, for the purpose of temperature adjusting the surface to be processed of a wafer (column 5, rows 22-24 and column 8, rows 35-41).

15. With respect to claims 10 and 11, as described above, Lenz teaches that it is known in the art to provide the chuck as an electrostatic chuck for processing a semiconductor substrate. See, e.g., column 1, rows 6-28 above and column 1, rows 10-12). Examiner however notes that inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F.2d

966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Further, as detailed above, Ishii teaches a focus ring that maintains contact with said chuck, and said chuck, which is electrostatic, is capable of being cooled during said etching operation via coolant reservoir and temperature-adjusting heater (column 5, rows 22-24 and column 8, rows 35-41).

16. With respect to claim 12, in both *Lenz* and *Ishii*, said focus ring is disposed peripherally around said substrate. As described above, *Ishii* further teaches a portion that rests on an annular landing section of said electrostatic chuck, which enables the aforementioned temperature adjustments.

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a temperature controlled chuck and focus ring including a contacting focus ring and electrostatic chuck in *Lenz* in order to temperature adjust the surface to be processed of a wafer as taught by *Ishii*.

18. With respect to claim 30-32, *Ishii* further teaches constructing the aforementioned electrostatic chuck from quartz (an oxygen impregnated material) as the material has a high resistance active ions (column 4, rows 7-12). *Ishii* also discloses forming an insulating plate (21) of quartz. Also see, column 5, rows 33-39.

Response to Arguments

19. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection. *Lenz* (in combination with other

references, as set forth above) discloses a substrate, chuck and focus ring arranged with respect to one another as recited in the amended claims.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **KARLA MOORE** whose telephone number is (571)272-1440. The examiner can normally be reached on **Monday-Friday, 9:00 am-6:00 pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karla Moore/
Primary Examiner, Art Unit 1792